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April 12, 2010
File: 106718.03

Mr. David Richman
Mountain Meadows Mutual Water Company
P.O. Box 459
Mammoth Lakes, California 93517

SUBJECT: **Water Resource Evaluation**
Mountain Meadows Mutual Water Company
Well #5 Aquifer Testing and Analysis
Crowley Lake, Mono County, California
APN 060-330-22

Dear Mr. Richman:

The attached report presents the results of a 72-hour aquifer performance test and a water resource evaluation for Mountain Meadows Mutual Water Company's Well No. 5 (MMMWC Well #5) located on Mono County Assessor's Parcel Number (APN) 60-330-22.

Based on the results of aquifer testing, we have currently rated MMMWC Well #5 at 307 gpm. A higher well rating could be achieved if additional aquifer testing is performed at higher rates.

Evaluation of water levels in Trailer Park Well No.2 and the Liebersbach well during the test did not indicate any discernable effect from pumping MMMWC Well #5. Therefore, we conclude that production pumping of MMMWC Well #5 should not have any measurable effect on water levels in the Trailer Park Well No.2 or the Liebersbach well.

We appreciate the opportunity to prepare this report presenting the procedures, findings, conclusions, and recommendations of our investigation and evaluation to date. Please call the undersigned with any questions or to discuss the report contents.

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Sincerely,

KLEINFELDER WEST, INC.

REGISTERED CERTIFIED ENGINEERING GEOLOGIST
DAVID J. HERZOG
No. 1295
Exp. 3/31/12
STATE OF CALIFORNIA

David J. Herzog, C.E.G.
Senior Engineering Geologist

Wendy Kay for
Phil Tousignant
Environmental Scientist

Attachment: Report (1 Original, 4 Copies)

cc: Jon Drozd, Mono County Health Department
Tim Rudolph, Pinyon Engineering

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WATER RESOURCE EVALUATION
MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL NO. 5
CROWLEY LAKE, CALIFORNIA

April 12, 2010

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PLATES

APPENDIX

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WATER RESOURCE EVALUATION
MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL NO. 5
CROWLEY LAKE, CALIFORNIA

1. EXECUTIVE SUMMARY

Well Drilling and Construction

MMMWC Well #5 was drilled and constructed in November and December 2009 to a depth of 625 feet below ground surface (bgs) and was completed with 10-inch diameter perforated casing with 0.060-inch slots from depths of 180 feet to 620 feet bgs. The well was tested for uranium concentrations during drilling, during well development, and during aquifer testing.

Uranium Testing Results

Initial results during drilling indicated detectable concentrations of uranium ranging from 0.005 to 0.029 mg/L compared to the maximum contaminant level (MCL) of 0.030 mg/L. However, the source of water used for drilling operations was found to contain uranium. These initial results have therefore been discounted.

During well development, uranium concentrations ranged from below detection to 0.005 mg/L at depths of 200 to 500 feet bgs. During the step drawdown test the uranium concentrations were all below the detection limit of 0.010 mg/L. Finally, during the 72-hour constant discharge test, the uranium concentrations were 1.1 pico curies per liter (pCi/L) compared to the MCL of 30 pCi/L.

Well Testing

Prior to the step-drawdown test, the static water level was measured at 96.82 feet bgs. During the step drawdown test at rates of 105, 207, and 358 gallons per minute (gpm), the pumping water level dropped to depths of 146, 178, and 329 feet bgs, respectively. Specific capacity values of 2.1, 2.5, and 1.5 gpm per foot of drawdown (gpm/ft dd) were

calculated at these rates, respectively. The specific capacity value at the 358 gpm rate was substantially lower than at the lower pumping rates indicating a decrease in well efficiency at the higher pumping rate.

At the conclusion of the 72-hour constant rate test performed at a rate of 307 gpm, the pumping water level dropped to a depth of 248 feet bgs, with a specific capacity value of 2.0 gpm/ft dd. This specific capacity was similar to the specific capacity from the step drawdown test at pumping rates of 105 and 207 gpm and indicates similar well efficiency at the pumping rate of 307 gpm.

Data acquired from the aquifer test indicate the nearby presence of a recharge boundary condition which conveys water to the vicinity of the pumping well. This recharge boundary limits drawdown impacts in the surrounding area.

Based on the results of aquifer testing, we have currently rated MMMWC Well #5 at 307 gpm. A higher well rating could be achieved if additional aquifer testing is performed at higher rates.

Potential Effects on Nearby Wells

Two nearby wells were monitored during the 72-hour constant rate test including the Trailer Park Well No. 2 and the Liebersbach domestic well. Evaluation of water levels in these wells during the test did not indicate any discernable effect from pumping MMMWC Well #5. Therefore, we conclude that production pumping of MMMWC Well #5 should not have any measurable effect on water levels in the Trailer Park Well No.2 or the Liebersbach well.

2. INTRODUCTION

This report presents the results of a 72-hour aquifer performance test and a water resource evaluation for Mountain Meadows Mutual Water Company's Well No. 5 (MMMWC Well #5) located on Mono County Assessor's Parcel Number (APN) 60-330-22, located on South Landing Road in Crowley Lake, California, as shown in Plate 1.

The goal of the evaluation was to assess the well for productivity and estimate the potential impacts to nearby domestic wells.

The successful completion of this test was substantially aided by the cooperation of the Liebersbach family, who did not use their private well for over five days to enable its use as an observation well and the Crowley Lake Trailer Park for providing access to .Trailer Park Well No. 2.

2.1 Geologic Setting

A review of the well completion report (Appendix A) indicates the project site is underlain by approximately 90 feet of Quaternary-age glacial outwash deposits and interbedded lake deposits. The glacial outwash is generally composed of highly permeable sand and gravel deposits. The interbedded lake deposits are composed of clay layers. These deposits are underlain by the Bishop Tuff, a variably welded and rhyolitic ignimbrite deposit deposited during the Long Valley Caldera pyroclastic eruption approximately 760,000 years before present.

The Bishop Tuff is divided into an upper and lower unit. The lower Bishop tuff is generally more welded and indurated and is considered to be a poor aquifer host rock with low transmissivity. The upper Bishop tuff is variably welded and grades into porous and probably more transmissive units in its upper horizons. The Bishop Tuff outcrops approximately 1,000 feet to the southwest of the project site. Quartz-monzonite bedrock underlies the Bishop Tuff.

2.2 Site Hydrogeology

MMMWC Well # 5 encountered a surficial layer of unconsolidated glacial outwash materials to a depth of 15 feet below ground surface (bgs), overlying clay mixed with gravel to a depth of 90 feet bgs. Volcanic tuff of the Bishop Tuff formation was then encountered to depths of 625 feet bgs, with clay layers present at depths of 230 to 250 feet and 315 to 325 feet bgs. Highly fractured and soft tuff was encountered between depths of 475 and 590 feet bgs.

Groundwater was reportedly encountered at a depth of 85 feet bgs during drilling. The static groundwater level was measured at 96.82 feet below the measuring point (bmp) prior to the step drawdown test on January 26, 2010.

Based on previous work performed for Mono County and the Crowley Lake Mutual Water Company, groundwater generally flows from south to north from the mountain ranges to Crowley Lake.

2.3 Well Drilling, Construction, and Development

In November 2009, a 6-inch diameter test hole was drilled to a depth of 625 feet bgs by Maranatha Drilling using the mud-rotary drilling method. In December 2009, the well was reamed out to a diameter of 18 inches using the mud-rotary drilling method. The well was completed using 10-inch diameter low-carbon steel blank casing and perforated casing with a 0.250-inch wall thickness, as shown in the Well Completion Report in Appendix A.

The perforated casing utilized 0.060-inch slot size. The blank casing was installed from ground surface to a depth of 180 feet bgs and the perforated casing was installed from a depth of 180 to 620 feet bgs. The well annulus was gravel packed using 3/8-inch pea gravel from depths of 60 to 625 feet bgs. The gravel was placed with water mixed with AQUA-CLEAR PFD Polymer Dispersant™, a drilling mud dispersant. A cement seal was then placed from ground surface to a depth of 60 feet bgs, as witnessed by a representative of the Mono County Health Department.

The well was developed by air lifting and placement of a chlorine solution followed by pump development.

Water Sampling

Water samples were collected during drilling to obtain discrete samples from selected zones at depths of 225, 425, and 625 feet bgs. Samples were collected by air lifting through a secondary pipe installed within the drill pipe. Uranium concentrations in these samples were 0.019 mg/L at a depth of 225 feet bgs , 0.005 mg/L at a depth of 425 feet bgs, and 0.029 mg/L at a depth of 625 feet bgs. However, it was later discovered the water used for drilling was the MMMWC supply which contained approximately 0.015 mg/L of uranium.

In January 2010, water samples were also collected from the pump discharge with the pump set at depths of 200, 400, and 500 feet bgs. Uranium concentrations in these samples were 0.005 mg/L at a depth of 200 feet bgs, and were below the detection limit of 0.002 mg/ L at depths of 400 and 500 feet bgs.

The maximum contaminant level (MCL) for uranium is 0.030 mg/L. All of the uranium concentrations in the January 2010 water samples were below the MCL.

3. FIELD ACTIVITIES AND TEST ANALYSIS

Kleinfelder personnel arrived on site on January 25, 2010 to perform aquifer testing and water sampling. A step-drawdown test was conducted on January 26, 2010 for a period of three hours, and a 72-hour constant discharge test was performed from January 26 through January 29, 2010.

3.1 Pre-Test Monitoring

Water levels were monitored in the pumping well (MMMWC Well #5) and two observation wells (the Trailer Park Well No. 2 and the Liebersbach domestic well) at locations shown in Plate 1. Both the Trailer Park Well No.2 and the Liebersbach domestic well are located southwest and upgradient from MMMWC Well #5 at distances of approximately 1,200 feet and 2,030 feet, respectively

Maranatha Drilling installed a one–inch diameter sounding tube in both MMMWC Well #5 and the Liebersbach well for placement of water level transducers and collection of water level data.

The Liebersbach family did not use their well from the morning of January 26, 2010 until January 30, 2010. Trailer Park Well No. 2 was not used during the period of pumping and was accessible for water level monitoring. Water levels were measured in the pumping well and the observation wells from January 26 through February 1, 2010 using a water level transducer which collected readings at one-minute intervals. Manual readings were also collected using an electric water level probe.

Static water levels prior to pumping were 96.82 feet bmp in MMMWC Well #5, [redacted] feet bmp in Trailer Park Well No. 2 , and [redacted] feet bmp in the Liebersbach well.

3.2 Step-Drawdown Test

A step drawdown test was conducted on January 26, 2010 by pumping for one hour each at rates of 105, 207, and 358 gallons per minute (gpm). Water levels during the

step drawdown test are presented in Plate 2 and indicate that the pumping water level dropped to depths of 146, 178, and 329 feet bgs, respectively during each step.

Specific capacity values are an indication of well efficiency and are reported in units of gpm per foot of drawdown (gpm/ft dd). The specific capacity values during the step drawdown test were 2.1, 2.5, and 1.5 gpm/ft dd, respectively as shown in Plate 3. The specific capacity value at the 358 gpm rate was substantially lower than at the pumping rates of 105 and 207 gpm indicating a decrease in well efficiency at the higher pumping rate. The straight line drawn between the 105 gpm and 207 gpm result indicates the amount of drawdown that should theoretically occur at any given pumping rate assuming an equal well efficiency.

3.3 Constant Discharge Test

A constant discharge test was performed for 72 hours at an average constant rate of 307 gpm from January 26 to 29, 2010. Two observation wells (Trailer Park Well No. 2 and the Liebersbach domestic well were monitored during the test. Well locations are shown in Plate 1. This test was conducted by Maranatha Drilling using a 50-horsepower submersible motor and a four-inch diameter column pipe. The test pump intakes were set at a depth of 500 feet below top of casing.

3.3.1 MMMWC Well #5

The pre-test static water level January 26, 2010 was 98.47 ft bmp. This indicates the static water level had recovered to within 2% of the static level prior to the step drawdown test.

At the end of three days of pumping, the maximum depth to water was 247.63 feet bmp, representing a maximum drawdown of 150.88 feet from the static level as shown in Plate 4. This indicates a specific capacity of 2.03 gpm/ft dd under nearly steady state pumping conditions. The specific capacity was 2.27 gpm/ft dd after one hour of pumping. Specific capacity values are shown in Plate 3 and indicate no loss in efficiency at the rate of 307 gpm.

After approximately three days of recovery, the static water level rose to 96.87 feet bmp, better than 99% recovery. This shows that no dewatering of the aquifer has

occurred. A plot of all the water level data collected in this well is shown in Plate 4 on an arithmetic time scale.

Aquifer test data were analyzed using the Cooper-Jacob method. This analytical method was chosen because of its ease of application and the suitability of the data to the method. The Cooper-Jacob method is a modification of the Theis method and is a valid substitution for Theis when the variable u is less than about 0.05. The following equation defines u:

$$u = \frac{1.87\, r^2 S}{Tt}$$

where

- r = distance, in feet, from the center of the pumped well to the observation well where the drawdown is measured;
- S = storage coefficient (dimensionless);
- T = transmissivity, in gallons per day per foot; and
- t = time since pumping started, in days.

The value of u drops to less than 0.05 in a few minutes for the pumping well (MMMWC Well #5). The Cooper-Jacob method is therefore is a valid analytical method.

Transmissivity was calculated using the Cooper-Jacob equation:

$$T = \frac{35\, Q}{\Delta(h_o - h)} \quad (ft^2/day)$$

where

- Q = pumping rate (gpm); and
- $\Delta(h_o - h)$ = drawdown per log cycle of time (feet).

A semi-log plot of depth to water as a function of pumping time for MMMWC Well #5 is shown in Plate 5. Analysis of the drawdown plot indicates that a recharge boundary was encountered after about 100 minutes, which caused the slope of the drawdown curve to flatten at a water level of approximately 244 feet. This is strong evidence for the presence of a highly transmissive aquifer unit in the vicinity of the well.

A plot of the recovery data for MMMWC Well #5 is shown in Plate 6. The Theis method of plotting recovery versus t/t' was used, where t is total time since pumping began and t' is time since pumping ceased. In this presentation, time progresses from right to left, and at the t/t' value of 2 the recovery time equals the pumping time. As shown, the well fully recovered to the static level indicating no dewatering of the aquifer.

Prior to the recharge boundary, the transmissivity value was calculated to be 280 ft^2/day using drawdown data from Plate 5 . An analysis of recovery data shown in Plate 6, and indicates a very similar transmissivity value of 260 ft^2/day.

On February 1, 2010, an additional drawdown test was performed for two hours at a rate of 353 gpm. The pumping water level dropped to a depth of 346 feet resulting in a specific capacity of 1.5 gpm/ft dd, as shown in Plate 3. This indicated a significant loss in well efficiency at the pumping rate of 353 gpm compared to the pumping rate of 307 gpm. This was the maximum pumping rate for the 50 horsepower pump installed in the well.

If additional well testing is not performed, we recommend that the well be designed to pump 307 gpm with a pumping level of 420 feet. This is based on projecting the water level decline prior to the recharge boundary for a period of five months.

3.3.2 Liebersbach Domestic Well

Aquifer response was monitored in the Liebersbach well prior to, during, and after the 72-hour test of MMMWC Well #5. Water levels for the full period of record are shown in Plate 7. Groundwater levels for the duration of the test are shown on an arithmetic time scale and a logarithmic time scale in Plates 8 and 9, respectively.

The static water level at the beginning of the test was [redacted] feet bmp. The depth to water at the end of the test was [redacted] feet bmp for a measured change of 0.02 feet. However, during the test, pumping in adjacent domestic wells caused water levels in the Liebersbach well to drop to [redacted] feet, a change of 0.13 feet. Analysis of Plates 7 through 9 shows that pumping of MMMWC Well #5 has no discernable effect on water levels in the Liebersbach well. However, adjacent domestic well pumping appeared to increase during the morning of January 28, 2010 causing a slight decrease in water levels in the Liebersbach well.

3.3.3 Trailer Park Well No. 2

Aquifer response was monitored in Trailer Park Well No. 2 prior to, during, and after the 72-hour test of MMMWC Well #5. The well is not currently in service and is located approximately 50 feet west of Trailer Park Well No 3. Well 3 is the primary supply well for the trailer park.

Water levels in Trailer Park Well No. 2 for the full period of record are shown in Plate 10, using an arithmetic time scale. Groundwater levels during the 72-hour aquifer test are shown in Plate 11, using a logarithmic time scale.

The static water level at the beginning of the test was [redacted] feet bmp and at the end of the test was [redacted] feet bmp for an increase of 0.01 feet. However, during the test, adjacent pumping in Trailer Park Well No. 3 caused water levels in Well No. 2 to rise and fall as much as 0.96 feet.

Analysis of Plates 10 and 11 shows that pumping of MMMWC Well #5 has no discernable effect on water levels the Trailer Park Well No. 2

3.4 Groundwater Sampling

During the step drawdown test conducted at rates of 105 gallons per minute (gpm), 207 gpm, and 358 gpm, water samples were collected and analyzed for uranium. All uranium concentrations were below the detection limit of 0.010 mg/L. Laboratory reports are contained in Appendix B.

After completion of the constant discharge test recovery period, water samples were collected for Title 22 drinking water analysis. The samples were not filtered.

Laboratory reports are presented in Appendix B and indicate that all results are below the maximum contaminant levels (MCLs) except for total coliform and total iron.

The well was not chlorinated after installing the test pump equipment. This likely resulted in the total coliform detection. Before the well is put into service, the well and pipelines will be chlorinated and re-sampled for total coliform and e coli.

The total iron analysis was 0.35 mg/L, which is over the Secondary MCL but the turbidity of the sample was 4.6 NTU. Therefore, it was likely that some suspended sediment got dissolved by the nitric acid preservative and was reported as iron.

Kleinfelder requested that the lab filter an un-preserved water sample through a 0.45 micron filter and re-analyze for dissolved iron. The result of the dissolved iron was 0.039 mg/L, below the Secondary MCL.

The uranium concentration in the sample was 1.1 picocuries per liter (pCi/L) compared to the MCL of 30 pCi/L.

4. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based upon the results of aquifer testing and groundwater sampling of MMMWC Well # 5.

- MMMWC Well # 5 encountered glacial outwash materials to a depth of 15 feet bgs overlying clay mixed with gravel to a depth of 90 feet bgs. Volcanic tuff of the Bishop Tuff formation was then encountered to depths of 625 feet bgs with clay layers present at depths of 230 to 250 feet and 315 to 325 feet bgs. Highly fractured and soft tuff was encountered between depths of 475 and 590 feet bgs.

- Groundwater was reportedly encountered at a depth of 85 feet bgs during drilling. The static groundwater level was measured at 96.82 feet bmp prior to the step drawdown test on January 26, 2010.

- During the step drawdown test, specific capacity values ranged from 1.5 to 2.5 gpm/ft dd. The specific capacity value at a rate of 358 gpm was substantially lower than at the lower pumping rates indicating a decrease in well efficiency at the higher pumping rate.

- A 72-hour constant rate test was performed at a rate of 307 gpm resulting in a specific capacity value of 2.0 gpm/ft dd. This specific capacity indicates good well efficiency at the pumping rate of 307 gpm.

- Analysis of aquifer test data indicate the nearby presence of a recharge boundary condition, which conveys water to the vicinity of the pumping well and limits drawdown impacts in the surrounding area.

- Two nearby wells monitored during the constant rate test included the Trailer Park Well No. and the Liebersbach well. Evaluation of water levels in these wells during the 72-hour test do not indicate any discernable effect from pumping MMMWC Well #5. Therefore, we conclude that production pumping of MMMWC

Well #5 should not have any measurable effect on water levels in the Trailer Park Well No.2 or the Liebersbach well.

- Water sampling indicates that all results are below the MCLs, except total coliform and total iron. The well was not chlorinated after installing the test pump equipment. This likely resulted in the total coliform detection. The total iron concentration that exceeded the Secondary MCL was likely caused by suspended sediment in the well. A subsequent analysis for dissolved iron showed a concentration below the Secondary MCL.

- The uranium concentration in the sample was 1.1 picocuries per liter (pCi/L) compared to the MCL of 30 pCi/L.

- If additional well testing is not performed, we recommend that the well be designed to pump 307 gpm with a pumping level of 420 feet. Additional head should be added to the pump for elevation change to the water tank, as well as friction loss from piping and valves.

- We recommend additional well testing at a rate of 500 gpm for 24 hours. This will allow for an evaluation of the full potential of the well.

5. LIMITATIONS

It should be recognized that definition and evaluation of environmental conditions is a complex and inexact science. Judgments leading to findings and recommendations are generally made with an incomplete knowledge of the environmental and subsurface conditions present. More extensive studies, including additional subsurface investigations, can be conducted to further reduce the inherent uncertainties beyond the level associated with this assessment. If Mountain Meadows Mutual Water Company wishes to further reduce the uncertainty associated with this assessment, Kleinfelder should be notified for additional consultation.

Kleinfelder performed this assessment in accordance with generally accepted standards of care which exist in California at the time the work was performed. No warranty, express or implied, is made.

PLATES

ATTACHED IMAGES: Images: MMMWC Well #5 Parcel Map.jpg
ATTACHED XREFS:
RENO, NV CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 1 PLOTTED: 09 Apr 2010, 10:44am, kcarter

400 200 0 400
APPROXIMATE SCALE (feet)

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SITE PLAN

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

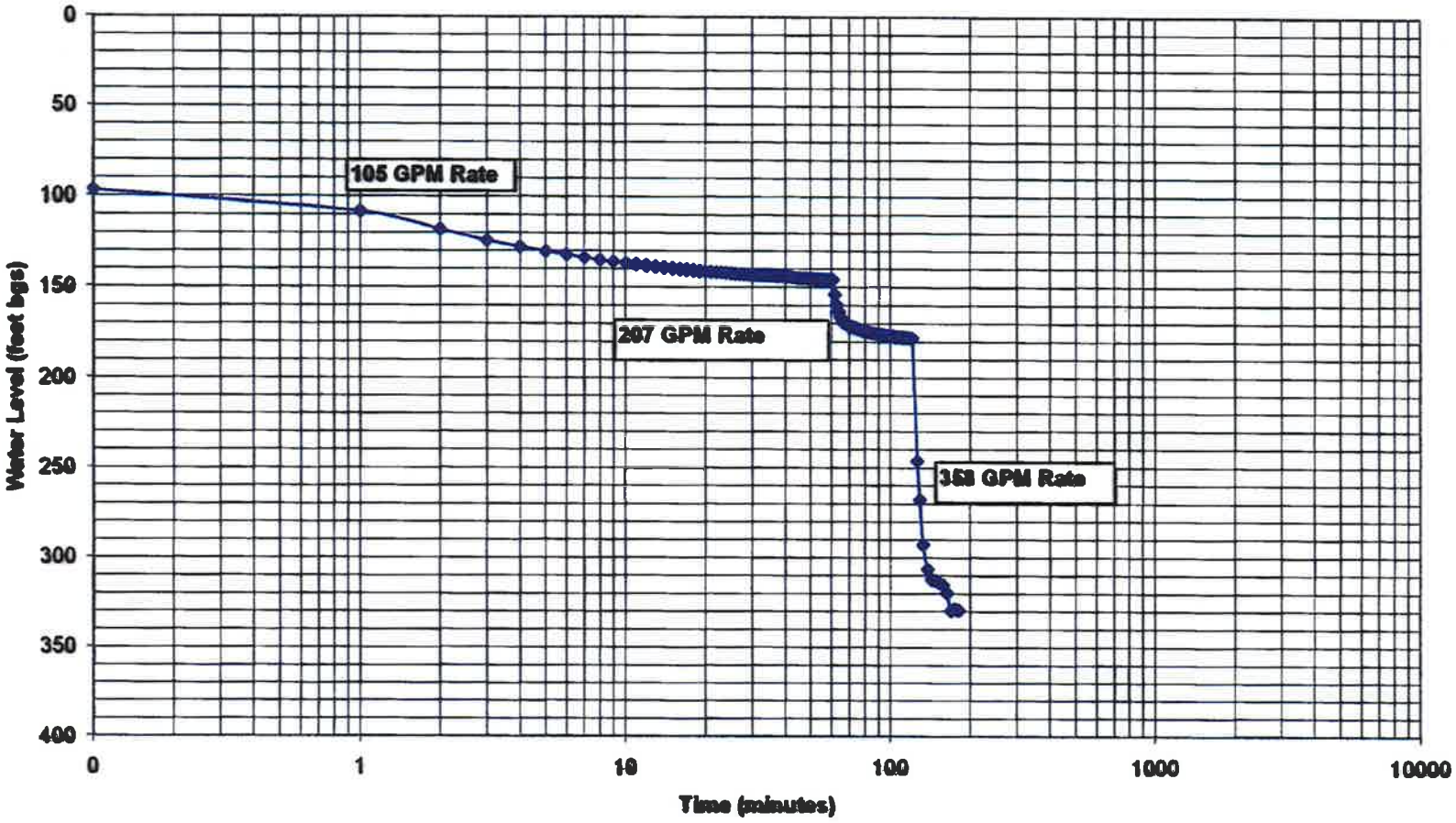
PLATE
1

ATTACHED IMAGES:
ATTACHED XREFS:
RENO, NV

CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 2

PLOTTED: 09 Apr 2010, 11:06am, kcarter

Plate 2
MMMWC Well # 5 Step Rate Test
January 26, 2010



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FILE NAME:	MMMWC WELL #5 TESTS.dwg

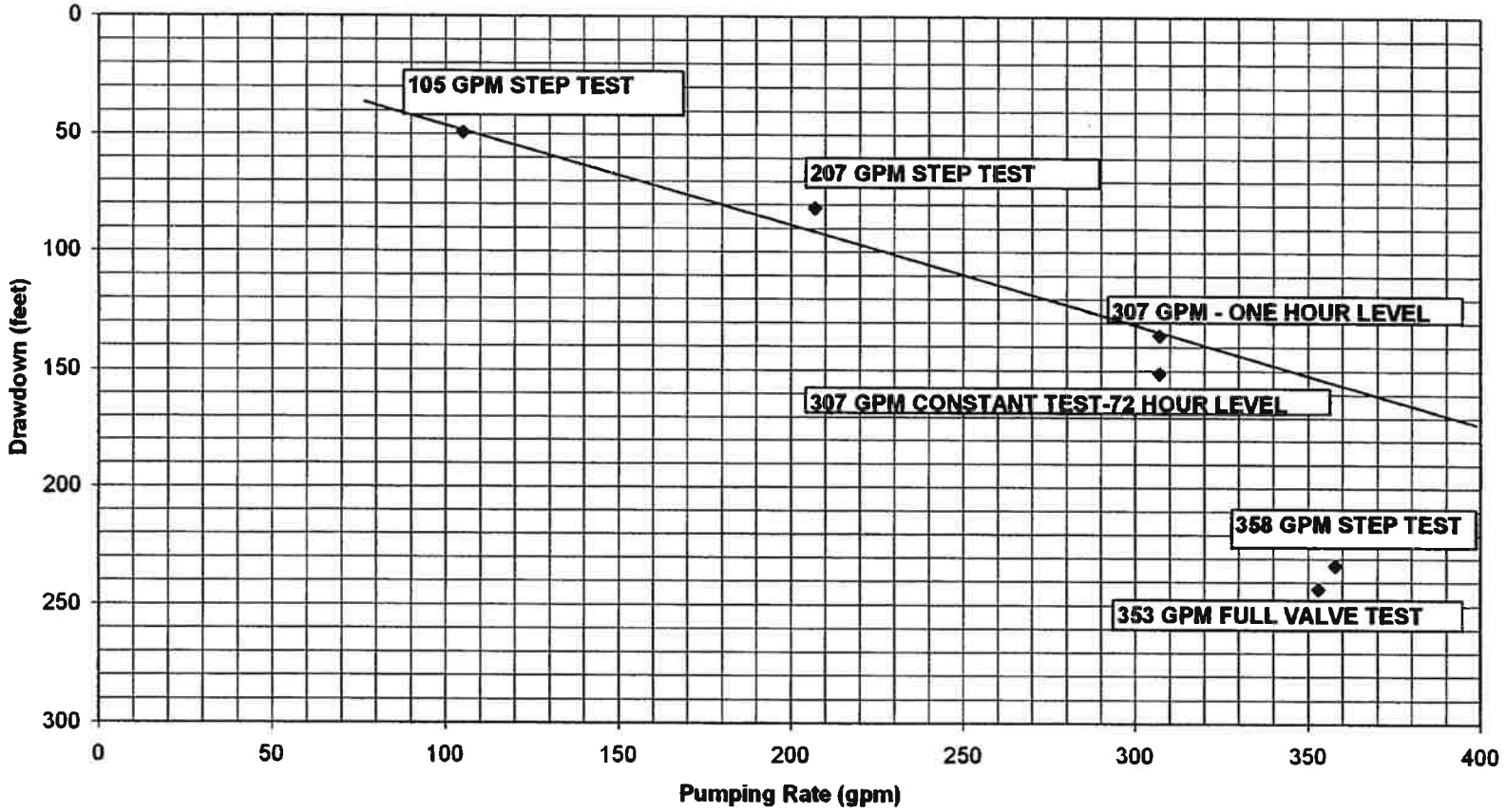
MMMWC WELL #5
STEP RATE TEST

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
2

ATTACHED IMAGES:
ATTACHED XREFS:
RENO, NV CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 3 PLOTTED: 09 Apr 2010, 11:06am, kcarter

Plate 3
MMMWC Well #5
Specific Capacity Data
January 26 to February 1, 2010



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MMMWC WELL #5
SPECIFIC CAPACITY DATA

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
3

ATTACHED IMAGES:
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RENO, NV

CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 4

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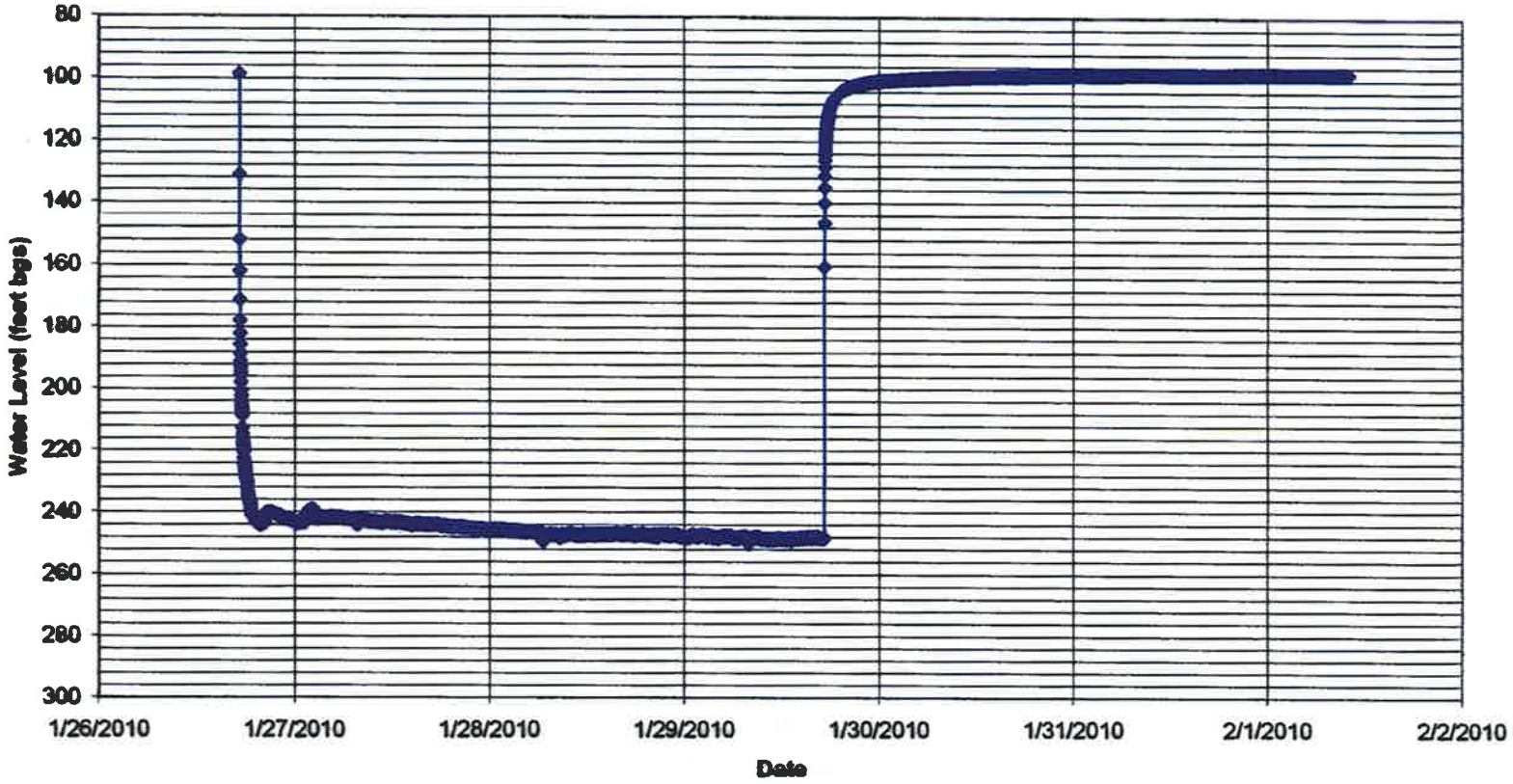
Plate 4
MMMWC Well #5
Constant Test and Recovery
January 26 to February 1, 2010
Arithmetic Data



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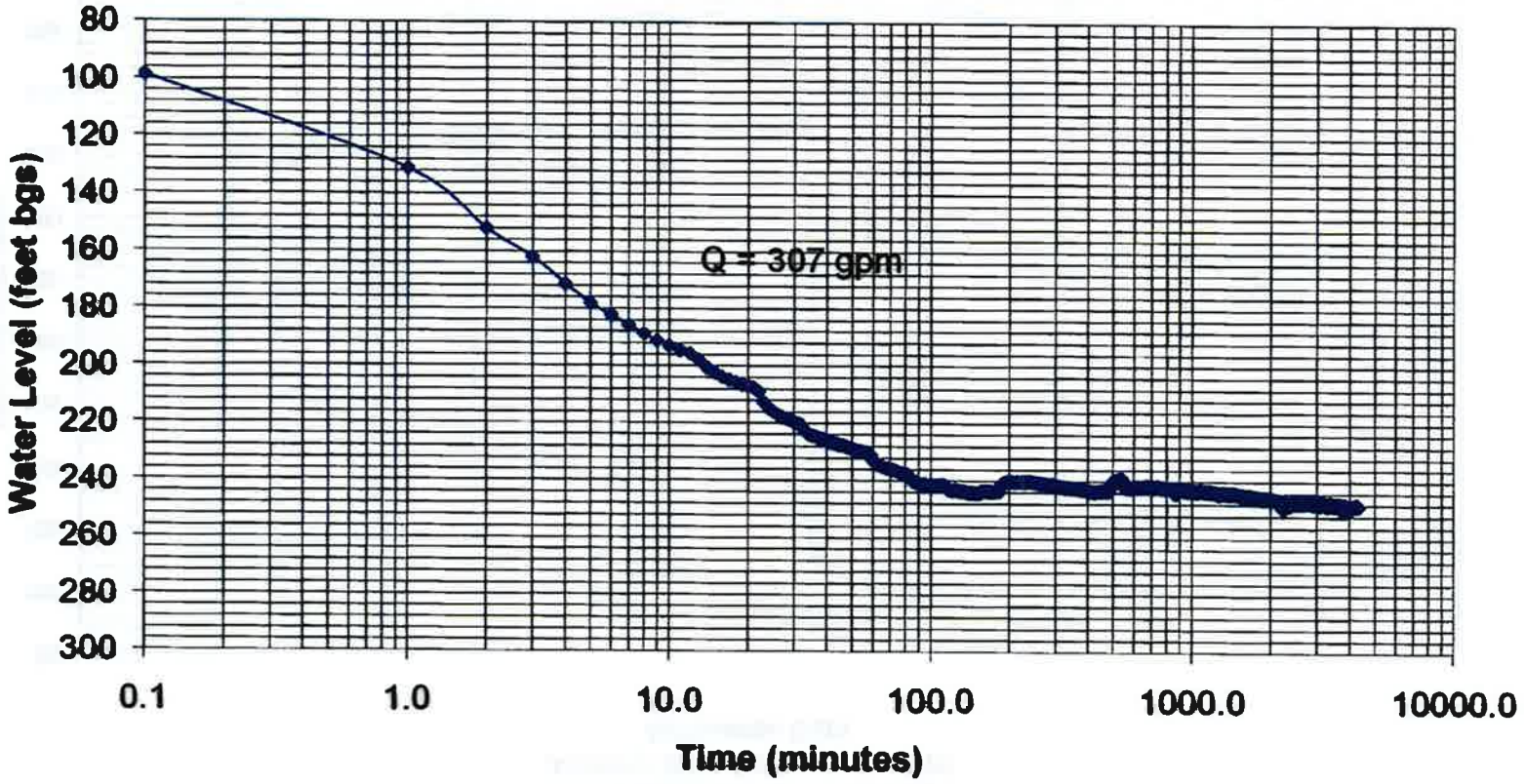
MMMWC WELL #5
CONSTANT TEST AND RECOVERY

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
4

ATTACHED IMAGES:
ATTACHED XREFS:
RENO, NV CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 5 PLOTTED: 09 Apr 2010, 11:06am, kcarter

Plate 5
MMMWC Well #5
72-Hour Constant Test
January 26 to January 29, 2010
Semi-Logarithmic Data



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MMMWC WELL #5
72-HOUR CONSTANT TEST

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
5

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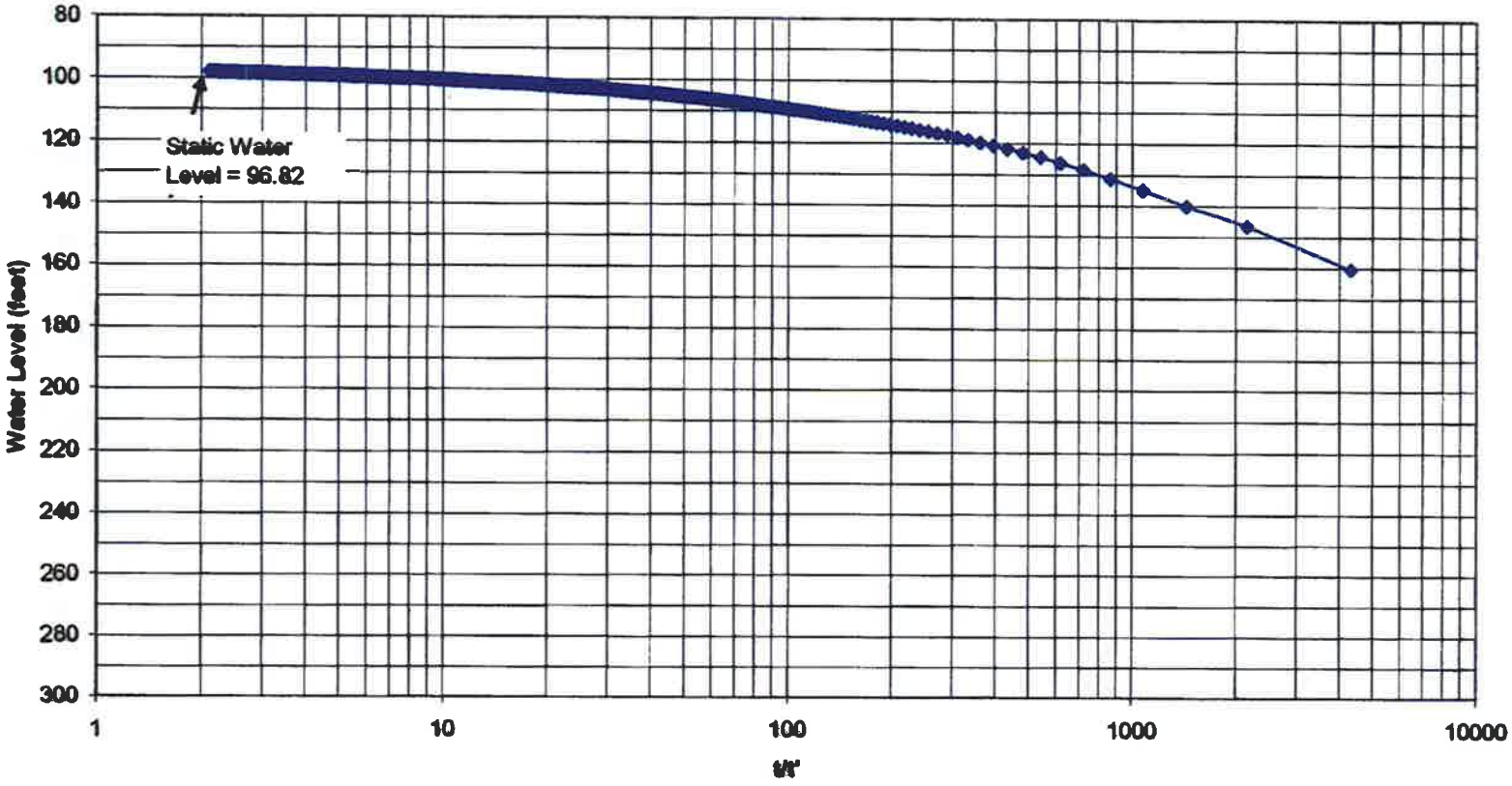
Plate 6
MMMWC Well #5
Recovery Test
January 29 to February 1, 2010
Semi-Logarithmic Data



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MMMWC WELL #5
RECOVERY TEST

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
6

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CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 7

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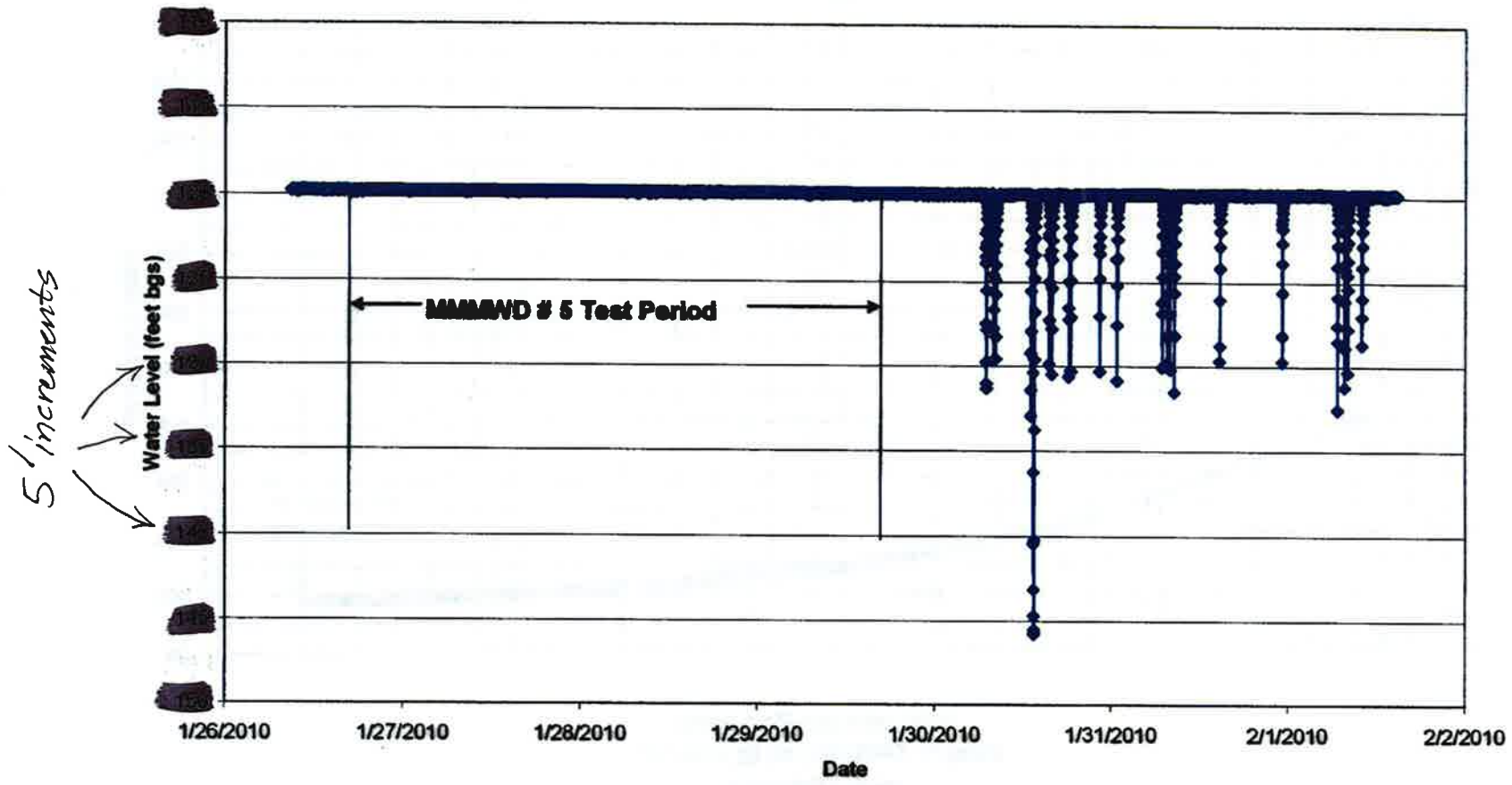
Plate 7
Liebersbach Well 1/26/10-2/1/10
All Data



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PROJECT NO.	106718.03
DRAWN:	APRIL 9, 2010
DRAWN BY:	K. CARTER
CHECKED BY:	D. HERZOG
FILE NAME:	LIEBERSBACH WELL TESTS.dwg

LIEBERSBACH WELL
1/26/10-2/1/10
ALL DATA

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

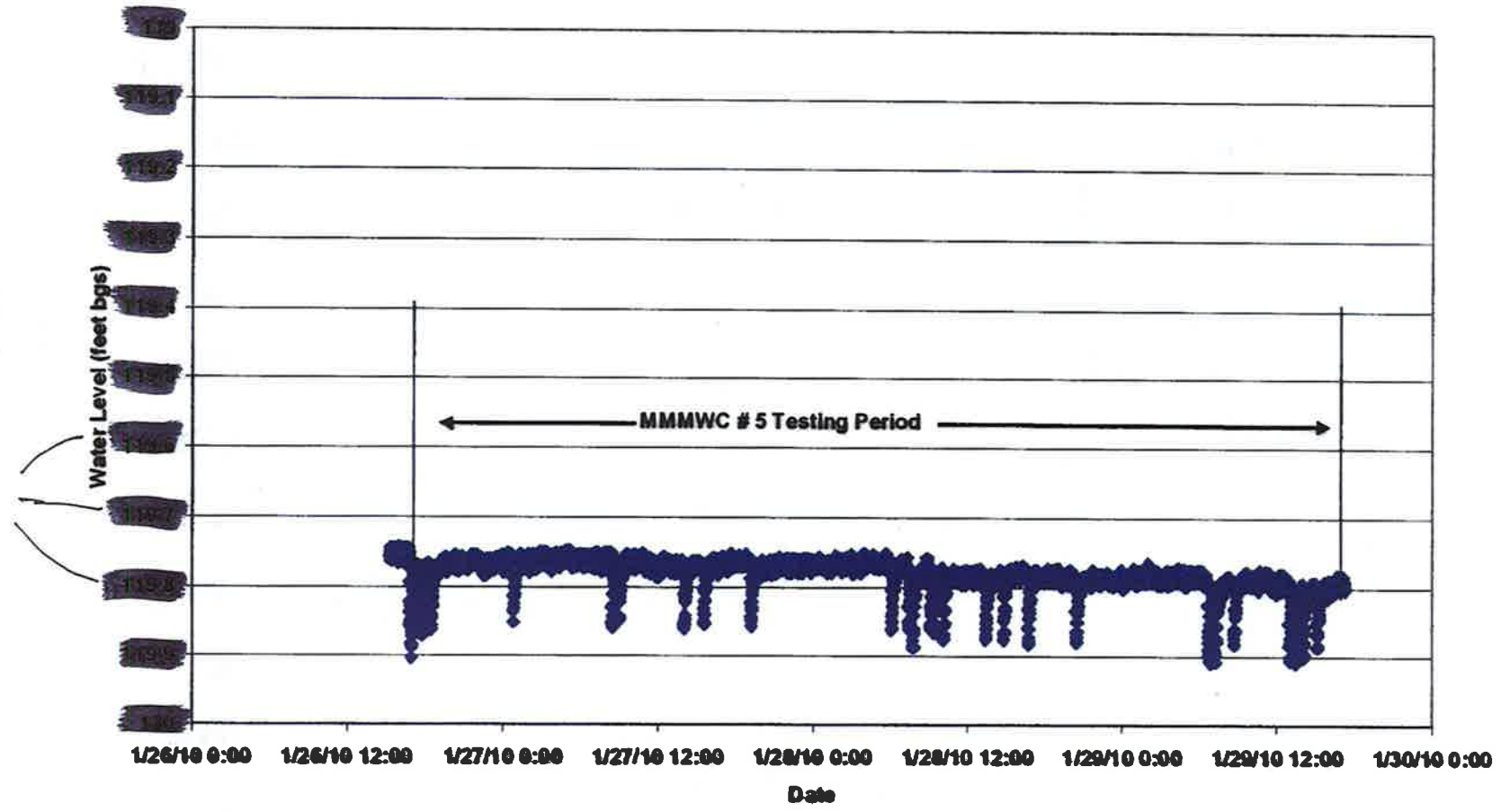
PLATE
7

ATTACHED IMAGES:
ATTACHED XREFS:
RENO, NV

CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 8

PLOTTED: 09 Apr 2010, 4:00pm, kcarter

Plate 8
Liebersbach Well During MMMWC Well #5 Test
Arithmetic Data



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DRAWN BY:	K. CARTER
CHECKED BY:	D. HERZOG
FILE NAME:	LIEBERSBACH WELL TEST8.dwg

LIEBERSBACH WELL DURING MMMWC WELL #5 TEST ARITHMETIC DATA

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
8

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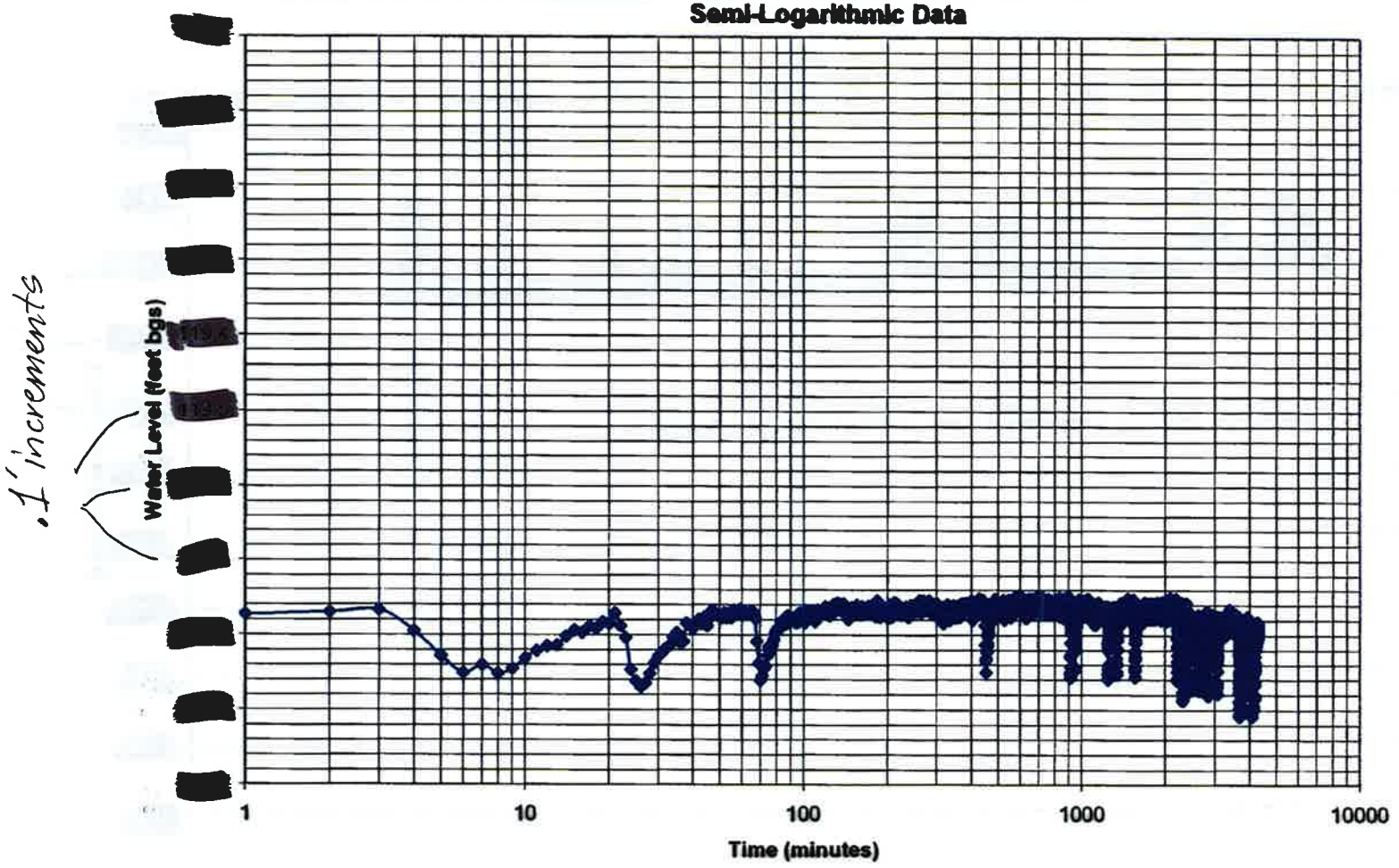
CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 9

PLOTTED: 09 Apr 2010, 11:15am, kcarter

Plate 9
Liebersbach Well During MMMWC Well #5 Test
Semi-Logarithmic Data



.1' increments

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FILE NAME:	LIEBERSBACH WELL TESTS.dwg

LIEBERSBACH WELL
DURING MMMWC WELL #5 TEST
SEMI-LOGARITHMIC DATA

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
9

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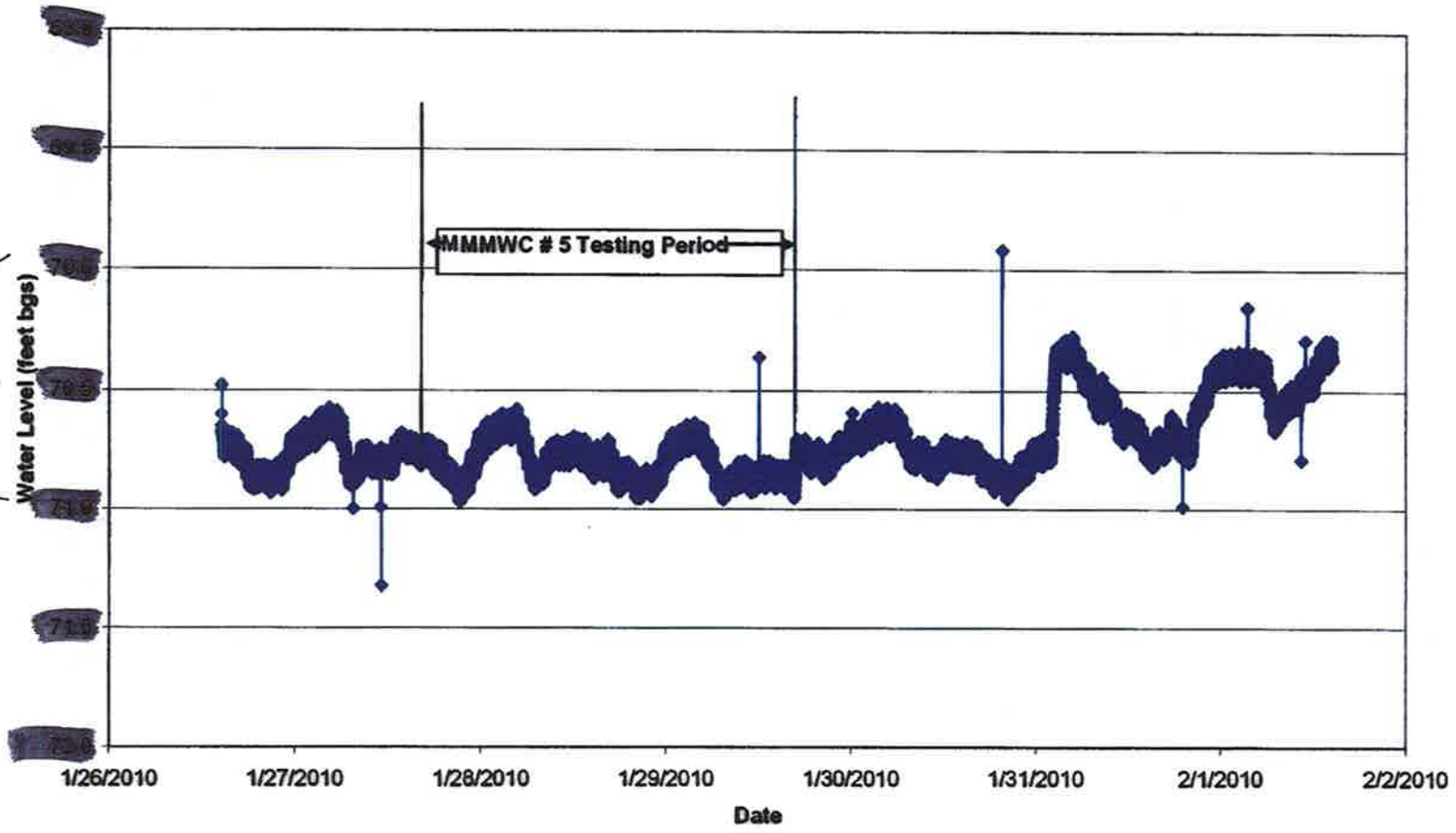
CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 10

PLOTTED: 09 Apr 2010, 11:18am, kcarter

Plate 10
Trailer Park Well During MMMWC Well # 5 Test
Arithmetic Data



5' increments

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DRAWN BY:	K. CARTER
CHECKED BY:	D. HERZOG
FILE NAME:	TRAILER PARK WELL TESTS.dwg

TRAILER PARK WELL DURING MMMWC WELL #5 TEST ARITHMETIC DATA

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
10

ATTACHED IMAGES:
ATTACHED XREFS:
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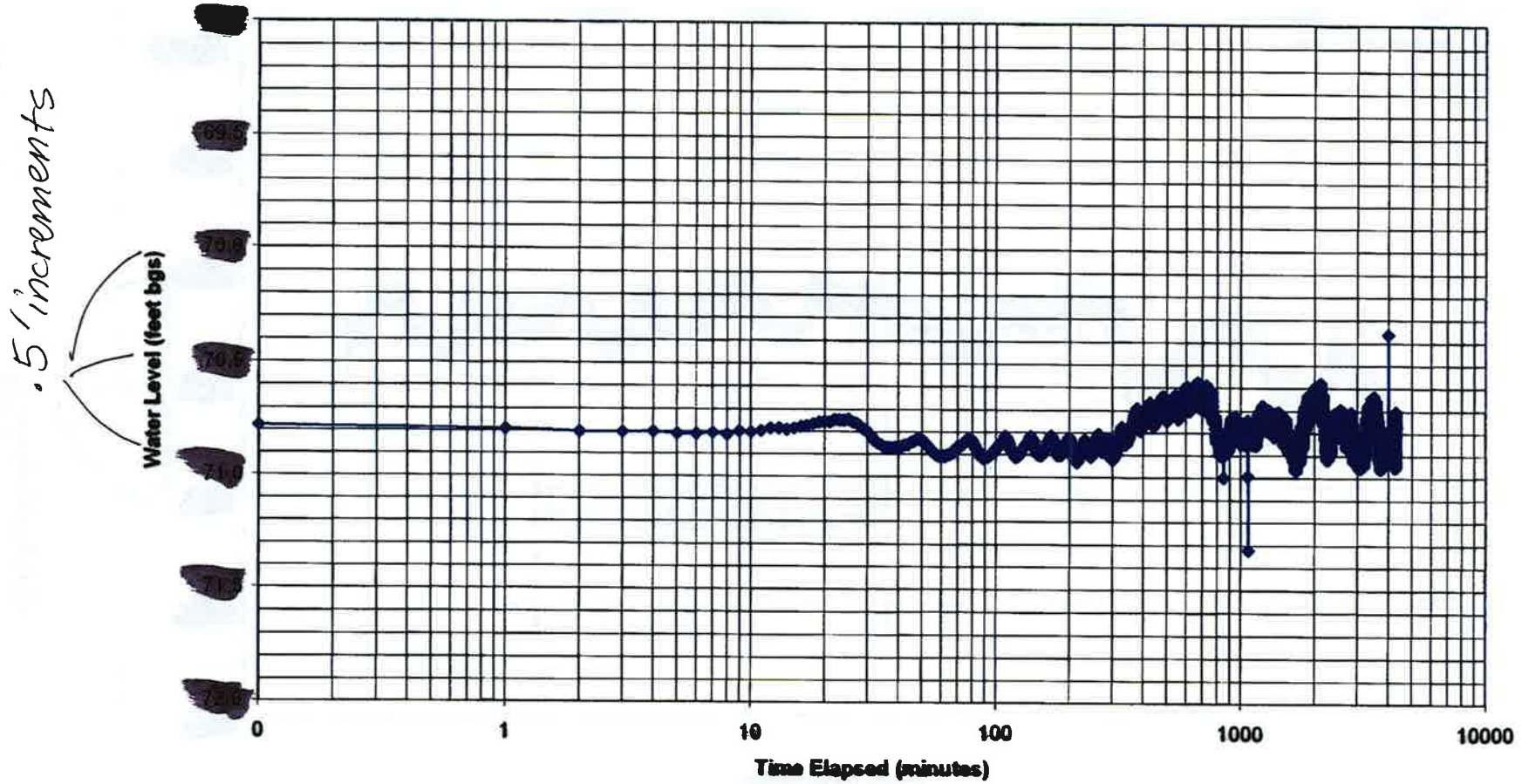
CAD FILE: L:\2010\Project\106718\Drafting\ LAYOUT: PLATE 11

PLOTTED: 09 Apr 2010, 11:18am, kcarter

Plate 11
Trailer Park Well During MMMWC Well #5 Test
Semi-Logarithmic Data



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DRAWN:	APRIL 9, 2010
DRAWN BY:	K. CARTER
CHECKED BY:	D. HERZOG
FILE NAME:	TRAILER PARK WELL TESTS.dwg

TRAILER PARK WELL DURING MMMWC WELL #5 TEST SEMI-LOGARITHMIC DATA

MOUNTAIN MEADOWS MUTUAL WATER COMPANY
WELL #5
SOUTH LANDING ROAD
CROWLEY LAKE, CALIFORNIA

PLATE
11

APPENDIX A

Well Completion Log

ORIGINAL
File with DWR

Page ___ of ___
Owner's Well No. ___

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 0931730

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Date Work Began 10-29-09, Ended 01-06-10
Local Permit Agency Mono County Health Department
Permit No. 26-09-34 Permit Date 10-19-09

GEOLOGIC LOG

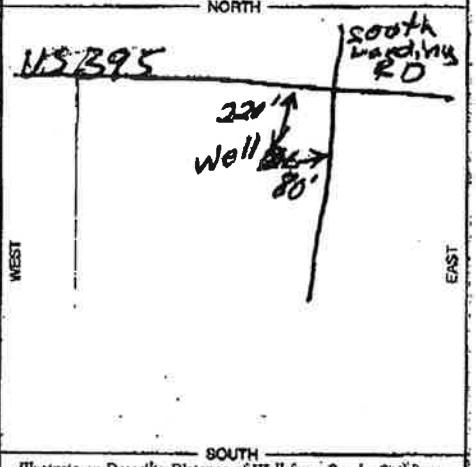
ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID Bentonite

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0 – 15	Small granite rocks in loose tan sil
15 – 30	On/off layers of orange and gray clays with light gravels
30 – 90	Pink and white clays with light gravels
90 – 115	Gray bishop tuff
115 – 150	Brown bishop tuff. With fractures around 135
150 – 155	Pink and white bishop tuff
155 – 230	Gray bishop tuff
230 – 250	Lots of light brown sandy clays with some gray bishop tuff
250 – 315	Gray bishop tuff in solid formation
315 – 325	Brown clays with some gray bishop tuff
325 – 475	Gray and black bishop tuff
475 – 590	Gray and black bishop tuff with some brown clays. Very soft/fractured formation
590 – 625	Gray bishop tuff with very small amount of brown bishop tuff

TOTAL DEPTH OF BORING 625 (Feet)
TOTAL DEPTH OF COMPLETED WELL 618 (Feet)

WELL OWNER
Name Mountain Meadows Mutual Water Co
Mailing Address P.O. Box 459
City Mammoth Lakes State Ca ZIP 93546

WELL LOCATION
Address Corner of hwy 395 and south landing r
City Crowley Lake
County Mono
APN Book 60 Page 330 Parcel 22
Township 4 s Range 29e Section 26
Lat 37 DEG. 34 MIN. 399 N SEC. Long 118 DEG. 44 MIN. 236 W SEC.

LOCATION SKETCH


Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
X NEW WELL
MODIFICATION/REPAIR ___
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)
WATER SUPPLY
___ Domestic X Public
___ Irrigation ___ Industrial
MONITORING X
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL
DEPTH TO FIRST WATER 85 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 98' (Ft.) DATE MEASURED 1-26-10
ESTIMATED YIELD * 500+ (GPM) TEST TYPE air
TEST LENGTH 30 (Hrs.) TOTAL DRAWDOWN 500' (Ft.)
** May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 – 180'	18"	X				steel	10"	.250	
180' – 620'	18"		X			steel	10"	.250	20 row .060size

DEPTH FROM SURFACE Ft. to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 – 60	X			
60 – 625			X	3/8" pea

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME Maranatha Drilling and pump service (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 22893 HWY 6 CITY Bishop STATE CA ZIP 93514
Signed Russell Kile C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED 3-25-10 C-57 LICENSE NUMBER 691892

DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 03 7883

APPENDIX B

Laboratory Reports